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Deputy Minister
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Ottawa, Canada
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Défense nationale
Sous-ministre
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Ottawa, Canada
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MAR 0 3 2011

Mr. Kevin Page
Parliamentary Budget Officer
Ottawa, Ontario K1A 0A9

Dear Mr. Page:

Please find enclosed a response to your questions in regards to F-35, providing more information on the project schedule and costs. We have provided per unit costs and methodology with respect to the $9 billion acquisition cost, as well as with respect to the $250-300 million annual sustainment costs.

As requested, we have also included the projected delivery schedule for the aircraft, the exchange rate forecasts used for the purpose of budgeting and an assessment of the impact this would have on price, the estimated production volume at the time of Canada's first and last purchase, confirmation that all 65 aircraft will be in active fleet, replacement and attrition forecasts and associated costs, and the inflation rate or index that is used to deflate costs.

Should you require, departmental officials would be pleased to provide a brief.

Sincerely,

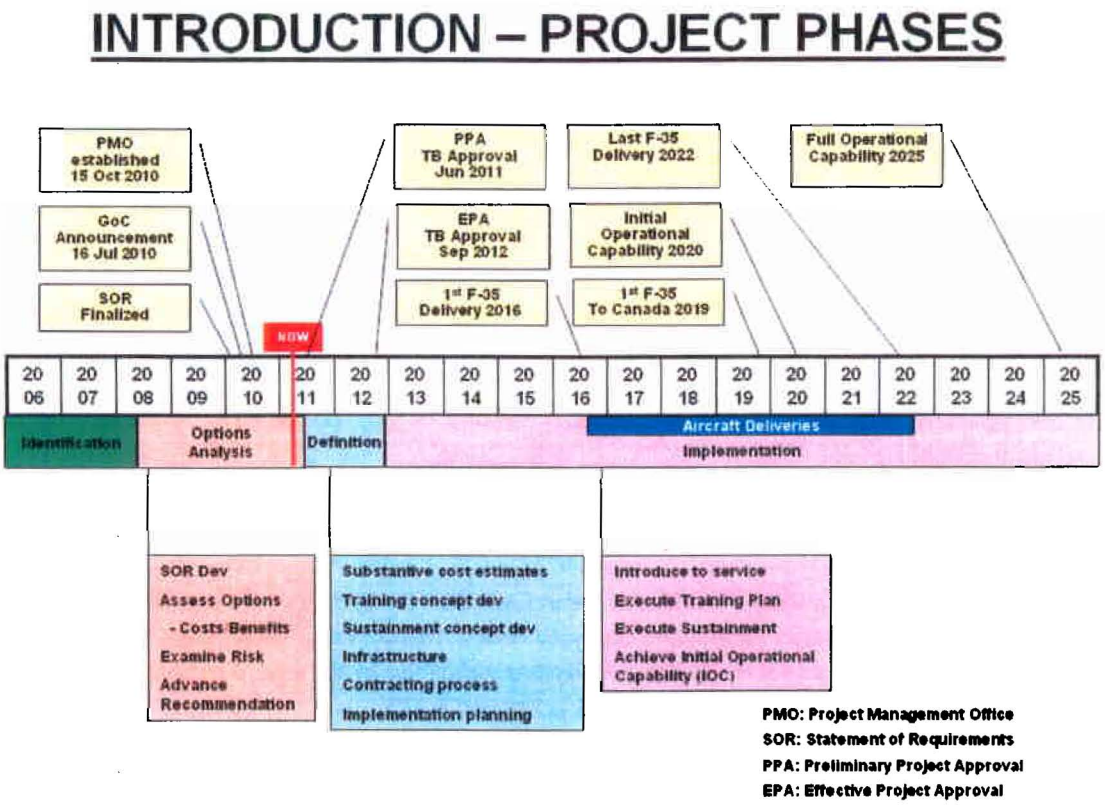
Robert Fonberg

Enclosures

Canada

RESPONSE TO PARLIAMENTARY BUDGET OFFICE
QUESTIONS & ANSWERS

The government announced its intention to acquire 65 F-35 Lightening II aircraft for $9 billion, with maintenance and support costs estimated at $250-300 million per year. With regards to the unit cost of the aircraft, DND has suggested that 'the current estimate is in the low-to-mid $70M per aircraft. Canada is buying at the cheapest price point on the production curve.'
(NOTE: The estimate identified above of "low-to-mid $70M per aircraft" is in US funds.)



The NGFC Project is presently in the Options Analysis Phase proceeding toward the Definition Phase within the DND Project Management Framework. Cost estimates at this stage are based on many broad assumptions that have allowed the Department to budget for the implementation of the project. It is during the upcoming Definition Phase that the detailed analysis of the entire project will be performed and will lead to substantive cost estimates based on actual planned implementation activities.

During the Definition Phase that is planned from Spring 2011 until Fall 2012, the NGFC Project Management Office, in consultation with stakeholders, will plan the implementation of the project in accordance with the stated operational requirements. Various options will be considered for aircraft delivery and operational implementation. Force structure and basing options will be defined so that proper planning and contracting can be initiated for activities

such as design and construction of infrastructure. Training options will consider the benefits of simulation versus in-aircraft training and Canadian industrial involvement. Sustainment options will also consider Canadian footprint. Using the results of the above activities, the project will undertake a detailed costing review to ensure the costing information that will be used to support the Implementation Phase is of a "substantive" nature. This review will also assist in obtaining cost validation and financial attestation from the departmental Chief Financial Officer.

Question #1:

With respect to the $9 billion acquisition cost, please provide a per unit cost and basis upon which the figure is arrived at with respect to:

- Aircraft
- Engine
- Modification:
    - Drag chute for northern airfields
    - Installation for probe-and-drogue refuelling system
- Research, development, testing and evaluation
- Initial logistics, consumable and capital spares
- Simulators
- Infrastructure
- Weapons
- Program management and contingency
- Any other relevant costs

Answer #1:

The cost estimates identified below are in Canadian budget year dollars. The budget year dollar represents an inflated dollar to reflect the cost of a commodity in the future. The escalation rates for each commodity are published in the DND Economic Model, directed for use by ADM Fin CS and are accepted by TB.

The costs estimates for these elements are identified as part of our official baseline costing for the project announced by the Government in July 2010, and were derived from the JSF Program Office 2009 Production Profile and Selected Acquisition Report (SAR) documentation. SAR documentation is updated on a yearly cycle.

The Unit Recurring Fly Away (URF) Vote 5 cost includes Aircraft (which includes costs for airframe, mission & vehicle systems, propulsion, engineering change orders, ancillary requirements, tech refresh and diminished manufacturing sources), Drag Chute, Refuelling Probe, Block Upgrades, Government Supplied Material and other Miscellaneous Systems. The total cost associated to URF is approximately $6.0B (CAD).

Research, Development, Test & Evaluation (RDT&E): These are Vote 1 costs that are captured under the JSF Concept Development Phase (CDP), System Development & Demonstration (SDD) and Production, Sustainment and Follow-on Development (PSFD) Memoranda of Understanding (MOUs). These expenditures to date are identified as follows:

Approved: CDP- $10M, SDD - $100M, PSFD - $129M = $239M (US)
Expended: CDP - $10M, SDD - $ 94M, PSFD - $ 63M = $167M (US)

Production Autonomic Logistics Support (ALS) is equivalent to Integrated Logistic Support and covers such elements as initial logistics, consumable and capital (repairable) spares, simulators and other support components. These Vote 5 costs were identified as part of the baseline and were derived from the documentation noted above. The total estimated cost of Production ALS is approximately $1.3B (CAD).

Infrastructure Vote 5 costs are estimated at approximately $0.4B (CAD). The assumption is that upgrades will be required to infrastructure at two Main Operating Bases, four Deployed Operating Bases and five Forward Operating Locations, to provide the required security, maintenance and operating environments in support of the Next Generation Fighter Capability (NGFC).

Weapon Vote 5 costs are estimated at approximately $0.3B (CAD) with the assumption that some advanced weapons will be required for the initial NGFC capability.

Program Management Office Vote 5 costs are estimated at approximately $0.2B (CAD). These costs cover all the resources to manage the project.

Contingency Vote 5 costs are estimated at approximately $0.8B (CAD).

BUDGET ELEMENT	VOTE 5 COST IN $ BY (BILLIONS)
Unit Recurring Fly Away (URF) Cost (includes):	
Aircraft	5.58
Block Upgrades	0.18
Refuelling Probe	0.10
Drag Chute	0.06
Government Supplied Material	0.01
Other Miscellaneous Systems	0.07
URF Sub Total:	**6.00**
Integrated Logistic Support	1.30
Infrastructure	0.40
Weapons	0.30
Project Management Office	0.20
Project Sub Total:	**8.20**
Contingency	0.80
Project Total:	**9.00**

Question #2:

With respect to the $250-300 million per year, please provide a per unit cost and basis upon which the figure is arrived at with respect to:

- Operating and support
- Capital spares
- Ongoing research, development, testing and evaluation
- Upgrades (including software and hardware and a mid-life upgrade)
- Disposal
- Any other relevant costs

Answer #2:

The F-35 global sustainment approach will allow for important cost savings through shared non-recurring engineering among partners and significant economies of scale in areas such as the supply chain. As such, sustainment costs for the F-35 are expected to be equivalent to other available modern fighter aircraft on the market and are estimated at $250-300M per year in National Procurement Vote 1 funds. These National Procurement costs are not incremental to the F-35 acquisition since the Department has historically spent nearly $200M per year sustaining its fleet of fourth generation CF-18 fighter aircraft with National Procurement funds.

National Procurement (NP) Costs:	$ 5.7B (CAD) (Includes costs for Contracted In-Service Support, Contractor Logistic Support (CLS) Personnel, Reprogramming Support at US Facility)

It should be noted that capital spares are included in the Vote 5 cost estimate detailed above. In addition, as disposal is planned and funded at the end of the capability lifetime, costs for disposal have not been incorporated into the 20 year sustainment cost estimate for NGFC.

Question #3:

Please also provide:
- the projected delivery schedule for the aircraft
- the exchange rate forecasts used for the purpose of budgeting and an assessment of the impact this would have on price
- the estimated production volume at the time of Canada's first and last purchase
- the rate of production learner expected for the aircraft
- confirmation that all 65 aircraft will be in active fleet
- replacement and attrition forecasts and associated costs
- the inflation rate or index that is used to deflate costs

Answer #3:

- The projected aircraft delivery schedule was originally identified as 1, 3, 12, 16, 16, 16, 1 over 7 calendar years beginning in 2016. However, this schedule has been modified to reflect a change in the notional pilot training concept to a delivery schedule of 1, 3, 9, 13, 13, 13, 13 over 7 years beginning in calendar year 2016.

- The long term exchange rates detailed in the chart just below are published by ADM Fin CS and were used for cost estimation purposes. If the Canadian dollar was at par throughout the duration of the project the project would have been calculated at $8.3B (CAD). Therefore the exchange rates used by the DND have added $0.7B (CAD) to the project cost.

Fiscal Years	10/11	11/12	12/13	13/14	14/15	15/16 +
Rates	1.030	1.036	1.036	1.039	1.047	1.094

- The estimated production volume at the time of Canada's first aircraft delivery in calendar year 2016 is quantity 207. The production volume at the time of Canada's last delivery in calendar year 2022 is quantity 152.

- Canada will acquire its aircraft after the production process has matured and at the peak of production when costs are projected to be the lowest.

- The initial concept is that all 65 aircraft will be operated at the Tactical Fighter Squadrons or the Operational Training Unit with limited down time for maintenance or follow-on development upgrades. Due to the nature of Canada's participation in the JSF program, no aircraft are allocated to test and evaluation.

- The acquisition of fighter capabilities need to include a number of aircraft beyond the minimum operational requirement in order to absorb attrition throughout the life of the fleet. Two factors drive the need to acquire attrition aircraft upfront: a) production lines usually close during the early stage of the fleet life and, b) new aircraft coming out of production lines usually vary in configuration with time and often cannot be integrated into an existing fleet of "older model" aircraft. Acquiring the F-35 provides Canada with the opportunity to defer attrition aircraft acquisition and react to the real attrition needs if they are to materialize. Indeed, the F-35 production currently planned to continue until at least 2035 and, most importantly, the global F-35 fleet will be jointly upgraded through the follow-on development process. As such, all operational aircraft world-wide will continually match the latest configuration of new aircraft being produced allowing each nation to replace lost aircraft or add to their existing fleet at any time.
- The inflation rates used by DND are published in the DND Economic Model. They can be used to deflate or inflate costs.